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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,152	09/18/2006	Seiji Nagatani	3209-124	7632

7590 08/04/2009
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EXAMINER

AUSTIN, AARON

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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08/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,152	Applicant(s) NAGATANI, SEIJI	
	Examiner AARON S. AUSTIN	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 1-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-15, in the reply filed on 5/14/09 is acknowledged. The traversal is on the ground(s) that the Office will be required to withdraw the Restriction Requirement upon reciting subject matter that is not disclosed in the art. However, the argument does not identify any subject matter that falls within this argument. Further, Applicant argues the Restriction Requirement does not refer to PCT 1.475 and does not indicate the requirement is proper in view of this rule. More particularly, the argument states the Restriction Requirement is improper for not discussing the various sections of PCT Rule 1.475. This is not found persuasive because the Requirement for Restriction does set forth an argument under PCT Rules 13.1 and 13.2 for lacking the same or corresponding technical feature which addresses "unity of invention"/"lack of unity", the subject matter of PCT Rule 1.475 and corresponding Chapter 1850 of the PCT. Thus the requirements for restriction are met. Applicant's argument that each section of PCT Rule 1.475 must be addressed for a proper restriction appears to be unfounded and is therefore unconvincing.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

The references cited in the submitted International Search Report have been considered, but will not be listed on any patent resulting from this application because they were not provided in compliance with 37 CFR 1.98(a)(1). In order to have the

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references printed on such resulting patent, a separate listing, preferably on a PTO/SB/08A and 08B form, must be filed with copies of the foreign references provided within the set period for reply to this Office action. See MPEP 609.03 and 1893.03(g).

It is noted that Applicant indicated on the IDS that the references were forwarded by the International Bureau; however they have not been received. As such, copies of the references are requested for the file.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it was not submitted on a separate sheet as required for printing. Correction is required. See MPEP § 608.01(b).

Claim Objections

Claims 1-2 and 9 are objected to because of the following informalities: the claims do not separate the elements by line indentation. Where a claim sets forth a

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plurality of elements or steps, each element or step of the claim should be separated by a line indentation. 37 CFR 1.75(i), MPEP 608.01(m). Appropriate correction is required.

Claims 1-15 are objected to because of the following informalities: the claims recite “electrodeposited copper foil with carrier foil on which resin layer for forming insulating layer is formed” which requires correction. Amendment is requested to a simpler description (e.g. “electrodeposited copper foil with a carrier foil and insulating resin layer”) **or** to a form corrected for clarity (e.g. “electrodeposited copper foil with a carrier foil on which a resin layer for forming an insulating layer is formed” – emphasis added). Appropriate correction is required.

Claim 1 is objected to because of the following informalities: line 3 recites “electrodeposited copper foil” rather than “the electrodeposited copper foil”. Appropriate correction is required.

Claim 1 is objected to because of the following informalities: line 4 recites “resin layer” rather than “the resin layer”. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: line 2 recites “any claim 1” rather than “claim 1”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the nickel-zinc alloy layer" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim. As the scope of the claim is indeterminable as written, it will not be addressed further in this Office Action.

Claim 14 provides for the production of a copper laminate and use of the electrodeposited copper foil with carrier foil on which resin layer for forming insulating layer, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 15 provides for the production of a printed wiring board and use of the electrodeposited copper foil with carrier foil on which resin layer for forming insulating layer, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

Claims 14-15 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper

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definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, and 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (US 2004/0038049).

Suzuki et al. teach a carrier foil 1 having an overlying interface region 2/3. An electrodeposited copper foil 4 is formed on the interface region. Finally, an insulating resin 5 is formed on the electrodeposited copper foil 4. See Fig. 3.

Regarding the smoothness of the electrodeposited copper layer, the term “smooth surface” is a relative term. More particularly, Suzuki et al. teach a roughness in the range of 0.01-5 microns which includes values that may be considered “smooth” as compared to rougher surfaces (paragraph [0072]). Further, this range of roughness overlaps the range taught by Applicant (present claim 13). Therefore the roughness of the product of Suzuki et al. is considered to include values within Applicant's definition of "smooth".

Regarding claim 6, rustproofing layers are applied to the on the side of the electrodeposited copper foil on which the resin layer is applied (paragraphs [0076]-[0077]).

Regarding claim 10, a silane couple agent is used to connect the electrodeposited copper layer to the resin layer (paragraph [0080]).

Regarding claim 11, amino-functional silane coupling agents are taught (paragraph [0081]).

Regarding claim 12, the thickness of the electrodeposited copper foil is 9 microns or less (paragraph [0016]).

Regarding claim 13, the copper foil has a roughness in the range of 0.01-5 microns (paragraph [0072]).

Regarding claims 14-15, the methods of production and uses are inherent in the structure of the product of Suzuki et al. as claimed. Further, Suzuki et al. teach formation of a copper clad laminate and printed wiring board using the structure described above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Suzuki et al. (US 2004/0038049).

Suzuki et al. teach a copper foil with carrier as described above.

Further, Suzuki et al. teach a nickel layer and a zinc layer are sequentially applied to the electrodeposited copper foil (paragraph [0077]). Suzuki et al. fail to teach the layers as forming a nickel-zinc alloy layer.

However, the lamination of the resin layer to the copper layer is taught to cause diffusion of the zinc layer with the nickel layer preventing diffusion into the electrodeposited copper foil (paragraph [0077]). Thus the zinc diffuses into the nickel layer rather than the copper foil thereby creating a nickel-zinc alloy upon the electrodeposited copper foil.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 2004/0038049).

Suzuki et al. teach a copper foil with carrier as described above with respect to claim 7.

Suzuki et al. fail to teach the amount of heat and duration of the lamination step such that the amount of diffusion of the zinc into the nickel layer is identified.

However, the nickel layer starts as essentially pure, 100 wt%, nickel which decreases to 99 wt% or less as zinc diffuses into the layer, thereby overlapping the claimed ranges. In the alternative, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the amount of diffusion for the

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intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Motivation to control the amount of diffusion is provided by Suzuki et al. who teach it is desirable to prevent the zinc from diffusion entirely through the nickel layer and into the copper foil (paragraph [0077]).

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 2004/0038049) in view of Matsushima et al. (US 6,905,757).

Suzuki et al. teach a copper foil with carrier as described above.

Suzuki et al teach the kind of resin is not particularly limited (paragraph [0084]), but the resin as claimed is not specifically taught.

Matsushima et al. teach a dielectric filler containing resin for use in printed wiring boards and copper laminates. The resin comprises 20-80 parts by weight of epoxy resin, 20-80 parts by weight of a solvent soluble aromatic polyamide resin polymer, and a curing accelerator (column 3, lines 21-30). Therefore, as Matsushima et al. clearly teach a resin composition having the claimed composition is suitable for use in printed wiring boards and copper laminates therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the resin of Matsushima et al. to form the resin layer of Suzuki et al.

Regarding claim 3, Matsushima et al. teach the aromatic polyamide resin is obtained from the reaction of an aromatic polyamide resin and a rubber resin (column 4, lines 18-20).

Regarding claim 4, Matsushima et al. teach the resin layer contains dielectric fillers (column 3, lines 21-38).

Regarding claim 5, the dielectric fillers may be considered to be skeletal material as they serve to stabilize and reinforce the resin layer. In an alternative interpretation, Matsushima et al. teach the resin may be formed with or without the omission of traditional fillers (column 3, lines 14-20).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron S Austin/
Examiner, Art Unit 1794